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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,504	09/30/1998	MICHAEL S. KAPPES	20944.4000	6738

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EXAMINER

NGUYEN, TOAN D

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/164,504

Applicant(s)

KAPPES, MICHAEL S.

Examiner

Toan D Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Puhl et al. (U.S. Patent 4,629,829).

For claim 1, Puhl et al. disclose full duplex speakerphone for radio and landline telephones comprising the steps of:

generating an analog output signal by said first transmitter for receipt by said second receiver (figure 6, col. 7 lines 59-65);

sampling said analog output signal (col. 7 lines 65-66); and

performing echo cancellation based on said analog output signal, wherein said echo cancellation cancels the echo signals conveyed by said echo channel (col. 7 lines 65-68).

For claim 2, Puhl et al. disclose wherein said step of performing echo cancellation substantially reduces the effect, on signals received by said first receiver, of non-linearities present in said first transmitter (figure 6, col. 7 lines 36-42 and col. 7 lines 65-68).

For claim 3, Puhl et al. disclose wherein said step of performing echo cancellation further comprises the steps of: converting said analog output signal into a corresponding digital signal (col. 7 line 65), said digital signal corresponding to at least a part of the echo signals as well as the non-linearities present in said first transmitter; and subtracting the digital signal from signals

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received by said first device to produce a compensated digital signal (col. 7 lines 36-42 and col. 7 lines 65-68).

For claim 4, Puhl et al. disclose wherein said step of performing echo cancellation further comprises the step of training an echo canceler to account for at least a part of the echo signals imparted by said echo channel on signals received by said first device (col. 8 lines 14-22).

For claim 5, Puhl et al. disclose wherein said step of performing echo cancellation further comprises the step of updating said echo canceler with an update signal to increase the accuracy of an echo estimate generated by said echo canceler (col. 8 lines 22-25).

For claim 6, Puhl et al. disclose sampling a digital signal provided by a digital signal processor (col. 7 line 62-65 and col. 8 lines 3-6), said digital signal being operatively coupled to an input of said first transmitter; and performing a second echo cancellation based on said digital signal, wherein said second echo cancellation further cancels the echo signals conveyed by said echo channel (col. 7 line 62 to col. 8 line 6).

For claim 7, Puhl et al. disclose full duplex speakerphone for radio and landline telephones comprising the steps of:

sampling an analog output signal provided by a local transmitter (col. 7 lines 65-66), said analog output signal including characteristics associated with a nonlinearity introduced by said local transmitter (figure 6, col. 7 lines 36-42);

converting said analog output signal into a corresponding digital signal (col. 7 lines 62-65); and

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producing a compensated digital signal for receipt by a local receiver, wherein said nonlinearity is substantially eliminated from the compensated digital signal (col. 7 lines 36-42 and col. 7 lines 65-68).

For claim 8, Puhl et al. disclose wherein said step of producing a compensated digital signal further comprises the step of reducing echo signals provided by an echo channel present in said digital communication system (figure 6, col. 7 lines 36-42 and col. 7 lines 65-68).

For claim 9, Puhl et al. disclose training an echo canceler to account for the echo signals present in said digital communication system (col. 8 lines 14-22).

For claim 10, Puhl et al. disclose the step of updating said echo canceler with an update signal to increase the accuracy of an echo estimate generated by said echo canceler (col. 8 lines 22-25).

For claim 11, Puhl et al. disclose full duplex speakerphone for radio and landline telephones comprising the steps of:

a transmitter for providing an analog output signal (col. 8 lines 38-41);

a receiver for receiving a compensated digital signal (figure 6, col. 7 lines 62-65); and

an echo canceler having an input signal and an output signal, wherein said input signal is essentially the analog output signal, and said output signal is representative of the echo signal and the non-linearities present in said digital communication system (figure 7, col. 7 lines 36-42 and col. 9 lines 39-41); and

means for producing said compensated digital signal in response to the output signal of said echo canceler and a signal sent by a second communication device associated with said digital communication system (col. 7 lines 65-68).

For claim 12, Puhl et al. disclose wherein said device further comprises a first analog-to-digital converter for converting the analog signal of said transmitter into a digital signal associated with the input signal of said echo canceler (col. 7 line 65).

For claim 13, Puhl et al. disclose wherein said device further comprises: a second analog-to-digital converter for converting an impaired analog signal transmitted by the second communication device into a digital signal, wherein said digital signal of said second analog-to-digital converter contains the echo signals and non-linearities present in said digital communication system and comprises the digital signal sent by the second communication device (col. 8 lines 38-45).

For claim 14, Puhl et al. disclose wherein said echo canceler is trained to account for the echo signals present in said digital communication system (col. 8 lines 14-22).

For claim 15, Puhl et al. disclose wherein said echo canceler is updated to increase the accuracy of an echo estimate generated by said echo canceler (col. 8 lines 22-25).

For claim 16, Puhl et al. disclose said device further comprising: a second echo canceler having an input signal and an output signal, wherein said input signal of said second echo canceler is operatively coupled to an input of said transmitter, said output signal of said second canceler is representative of said echo signals, and wherein said second echo canceler further cancels the echo signals present in said digital communication system (col. 8 lines 38-54).

For claim 17, Puhl et al. disclose full duplex speakerphone for radio and landline telephones comprising the steps of:

generating an analog output signal by said first transmitter for receipt by said second receiver (figure 6, col. 7 lines 59-65);

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sampling said analog output signal; detecting a signal on an echo channel associated with an actual echo signal at said second device (col. 7 lines 65-66); and

performing echo cancellation based on said sampled analog output signal and said signal on said echo channel(col. 7 lines 65-68).

For claim 18, Puhl et al. disclose full duplex speakerphone for radio and landline telephones comprising the steps of:

sampling an analog output provided by a local transmitter (col. 8 lines 39-41), said analog output including a known training signal and characteristics associated with a nonlinearity introduced by said local transmitter (col. 7 lines 36-42);

calculating an estimated echo signal in response to said known training signal (col. 8 lines 41-57);

detecting a signal on an echo channel associated with an actual echo signal at a second device (col. 8 lines 6-26); and

producing a compensated digital signal for receipt by a local receiver, wherein said nonlinearity is substantially eliminated from the compensated digital signal on the basis of the estimated echo signal and said signal associated with said actual echo signal at said second device (col. 7 lines 36-42 and col. 7 lines 65-68).

For claim 19, Puhl et al. disclose full duplex speakerphone for radio and landline telephones comprising the steps of:

a transmitter for providing an analog output signal (col. 8 lines 38-41);

a receiver for receiving a compensated digital signal (figure 6, col. 7 lines 62-65);

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an echo canceler having an input signal and an output signal, wherein said input signal is essentially the analog output signal, and said output signal is representative of the echo signal and the non-linearities present in said digital communication system (figure 7, col. 7 lines 36-42 and col. 9 lines 39-41);

an input associated, at least in part, with an actual echo signal at a second communication device (figure 6, col. 7 lines 62-68); and

a summing junction operably coupled with the output signal of the echo canceller and further operably coupled with the input associated, at least in part, with said actual echo signal at said second communication device (figures 6 and 7, col. 6 lines 65-68 and col. 51-60).

***Response to Arguments***

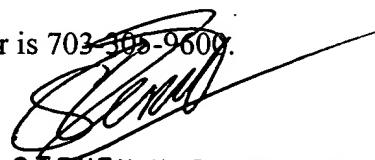
3. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

***Contact Information***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan D Nguyen whose telephone number is 703-305-0140. The examiner can normally be reached on Monday- Friday (7:00AM-4:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Huy Vu can be reached on 703-308-6602. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

  
STEVEN H. D NGUYEN  
PRIMARY EXAMINER



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